PHYSICA D

VOLUME 26D, Nos. 1–3 **MAY / JUNE 1987**

CONTENTS

In Memoriam v

Obituary – Geoffrey S.S. Ludford vii

WARNOCK, R.L. and RUTH, R.D., Invariant tori through direct solution of the Hamilton–Jacobi equation 1

TING, A.C., CHEN, H.H. and LEE, Y.C., Exact solutions of a nonlinear boundary value problem: the vortices of the two-dimensional sinh-Poisson equation 37

ORTOLEVA, P., Chemical wave–electrical field interaction phenomena 67

KOILLER, J., BALTHAZAR, J.M. and YOKOYAMA, T., Relaxation-chaos phenomena in celestical mechanics. I. On Wisdom's model for the 3/1 Kirkwood gap 85

GAFFET, B., A class of 1-D gas flows soluble by the inverse scattering transform 123

WANG, X.-J. and NICOLIS, G., Bifurcation phenomena in coupled chemical oscillators: normal form analysis and numerical simulations 140

GUTKIN, E., Asymptotics of trajectories for Newtonian dynamics with directed force 156

CHEN, H.H., LEE, Y.C. and LIN, J.E., On the direct construction of the inverse scattering operators of integrable nonlinear Hamiltonian systems 165

CHEN, H.H. and LIN, J.E., On the infinite hierarchies of symmetries and constants of motion for the Kadomtsev–Petviashvili equation 171

OLVERA, A. and SIMÓ, C., An obstruction method for the destruction of invariant curves 181

MACKAY, R.S. and PERCIVAL, I.C., Universal small-scale structure near the boundary of Siegel disks of arbitrary rotation number 193

SCHNEIDER, H., Integrable relativistic *N*-particle systems in an external potential 203

HAYOT, F., Viscosity in lattice gas automata 210

SPORNS, O., ROTH, S. and SEELIG, F.F., Chaotic dynamics of two coupled biochemical oscillators 215

SATTINGER, D.H. and ZURKOWSKI, V.D., Gauge theory of Bäcklund transformations, II 225

TAKIMOTO, N. and YAMASHIDA, H., The variational approach to the theory of subharmonic bifurcations 251

ROMEIRAS, F.J., BONDESON, A., OTT, E., ANTONSEN Jr., T.M. and GREBOGI, C., Quasiperiodically forced dynamical systems with strange nonchaotic attractors 277

COUTSIAS, E.A. and KAZARINOFF, N.D., Disorder, renormalizability, theta functions and Cornu spirals 295

FLYTZANIS, N., PNEVMATIKOS, S. and REMOISSENET, M., Soliton resonances in atomic nonlinear systems 311

WIESENFELD, K. and TUFILLARO, N.B., Suppression of period doubling in the dynamics of a bouncing ball 321

ALSTRØM, P., LEVINSEN, M.T. and RASMUSSEN, R., Scaling exponents, relations, and order dependence for circle maps 336

MATSUMOTO, K. and TSUDA, I., Extended information in one-dimensional maps 347

WILBRINK, J., Erratic behavior of invariant circles in standard-like mappings 358

PIÑA, E. and JIMÉNEZ LARA, L., On the symmetry lines of the standard mapping 369

CAMACHO, C. and LUND, F., Inelastic scattering of Toda solitons by an interface 379

Continued on page 3 of cover

Continued from page 4 of cover

BLACKBURN, J.A., YANG, Z.-J., VIK, S., SMITH, H.J.T. and NERENBERG, M.A.H., Experimental study of chaos in a driven pendulum 385

PAGANO, S., SALERNO, M. and SAMUELSEN, M.R., Parametric adiabatic perturbations on the sine–Gordon breather solution 396

NOVICK-COHEN, A., Interfacial instabilities in directional solidification of dilute binary alloys: the Kuramoto–Sivashinsky equation 403

DE FILIPPO, S., FUSCO GIRARD, M. and SALERNO, M., Lyapunov exponents for the $n = 3$ discrete self-trapping equation 411

DYNAMICS DAYS (*Program synopsis*) 415

CONFERENCE CALENDAR 417

FORTHCOMING ARTICLES 418

INDEX OF AUTHORS AND PAPERS TO VOLUME 26D 420